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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/693,034	10/20/2000	Gerald E. Schmidt	32444	8044

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EXAMINER

DOUGHERTY, THOMAS M

ART UNIT	PAPER NUMBER
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2834

DATE MAILED: 11/29/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/693,034

Applicant(s)

SCHMIDT ET AL.

Examiner

Thomas M. Dougherty

Art Unit

2834

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 October 2000.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-34 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 7-25 and 28-34 is/are allowed.
- 6) ☒ Claim(s) 1-6, 26 and 27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 October 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application)
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2, 4 and 5 are rejected under 35 U.S.C. 102(b) as being anticipated by Hanafy (US 5,945,770). Hanafy shows (figs. 2, 3) an acoustic transducer comprising: a honeycomb structure having a plurality of cells (each comprised of 24, 26, 28); and each of said cells comprises a piezoelectric transducer. Each of said plurality of cells comprises a multi-sided cell. Each piezoelectric transducer comprises a stack (24, 26, 28) having at least one piezocomposite element.

Claims 1 and 3 are rejected under 35 U.S.C. 102(b) as being anticipated by Haun et al. (US 5,945,770). Haun et al. show (fig. 1) an acoustic transducer comprising: a honeycomb structure having a plurality of cells (16); and each of said cells comprises a piezoelectric transducer. Each of said plurality of cells comprises a cylindrical cell.

Claims 1 and 2 are rejected under 35 U.S.C. 102(b) as being anticipated by Nakaya et al. (US 5,684,884). Nakaya et al. show (fig. 2) an acoustic transducer comprising: a honeycomb structure having a plurality of cells (14); and each of said cells (14) comprises a piezoelectric transducer. Each of said plurality of cells comprises a multi-sided cell.

Claims 1, 3 and 26 are rejected under 35 U.S.C. 102(b) as being anticipated by Kim et al. (US 5,376,859). Kim et al. show (fig. 1) an acoustic transducer comprising: a honeycomb structure having a plurality of cells (24); and each of said cells (24) comprises a piezoelectric transducer. Each of said plurality of cells comprises a cylindrical cell. Kim et al. provide (fig. 3) an impact-resistant honeycomb structure (soft-resin, 28) having a plurality of cells (24), each of said cells (24) comprises a piezoelectric transducer.

Claims 1 and 2 are rejected under 35 U.S.C. 102(b) as being anticipated by Nakaya et al. (US 4,755,707). Nakaya et al. show (fig. 2) an acoustic transducer comprising: a honeycomb structure having a plurality of cells (202); and each of said cells (202) comprises a piezoelectric transducer. Each of said plurality of cells comprises a multi-sided cell.

Claims 1 and 2 are rejected under 35 U.S.C. 102(b) as being anticipated by Takeuchi et al. (US 4,683,396). Takeuchi et al. show (fig. 1) an acoustic transducer comprising: a honeycomb structure having a plurality of cells (101); and each of said cells (101) comprises a piezoelectric transducer. Each of said plurality of cells comprises a multi-sided cell.

Claims 1 and 2 are rejected under 35 U.S.C. 102(b) as being anticipated by Smith (US 5,334,903). Smith shows (fig. 1) an acoustic transducer comprising: a honeycomb structure having a plurality of cells (11); and each of said cells (11) comprises a piezoelectric transducer. Each of said plurality of cells comprises a multi-sided cell.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 6 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hanafy (US 5,945,770) in view of Kim et al. (US 5,376,859). Given the invention of Hanafy as noted above, his cells are not cylindrical and he doesn't inherently display an impact-resistant structure. Given the invention of Kim et al. as noted above, their cells are not comprises of a stack comprising at least one piezocomposite element. It would have been obvious to one having ordinary skill in the art to employ a stack configuration such as is taught by Hanafy in the device of Kim et al. at the time of their invention because such a construction "reduces the impedance of the transducer thereby providing a better electrical match between the ultrasound transducer and the ultrasound system to which it is coupled", as Hanafy teaches in his abstract. Alternatively it would have been obvious to one having ordinary skill in the art to employ a cylindrical shape for the piezocomposite elements, in an impact resistant structure, in the device of Hanafy, since this is a structurally strong configuration as Kim et al. teach (col. 1, l. 68 - col. 2, l. 5).

Allowable Subject Matter

Claims 7-25 and 28-34 are allowed.

The following is an examiner's statement of reasons for allowance: The prior art fails to show or fairly suggest a soft pressure release material disposed entirely around

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stacked elements save a front surface, within a honeycomb structure of an acoustic transducer array.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The remaining prior art cited reads on some aspects of the claimed invention.

Direct inquiry concerning this action to Examiner Dougherty at (703) 308-1628.

fmv
tmd

November 27, 2002

Thomas M. Dougherty

THOMAS M. DOUGHERTY
PRIMARY EXAMINER
GROUP 2100

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